

Forecast Update December 23, 2021

Hi Folks,

Here is an update on what has happened so far with the current storm and a look at the forecast that gets us close to the end of the year. I will do another update Tuesday the 28th and will also do an outlook for January.

Figure 1 shows the National Weather Service California Nevada River Forecast Center (CNRFC) observed precipitation map for the past 7 days. Areas on the North and Central Coasts and in the Sierra have seen in excess of three inches while the South Coast has been limited to just some scattered showers.

CNRFC Area Observed Precipitation

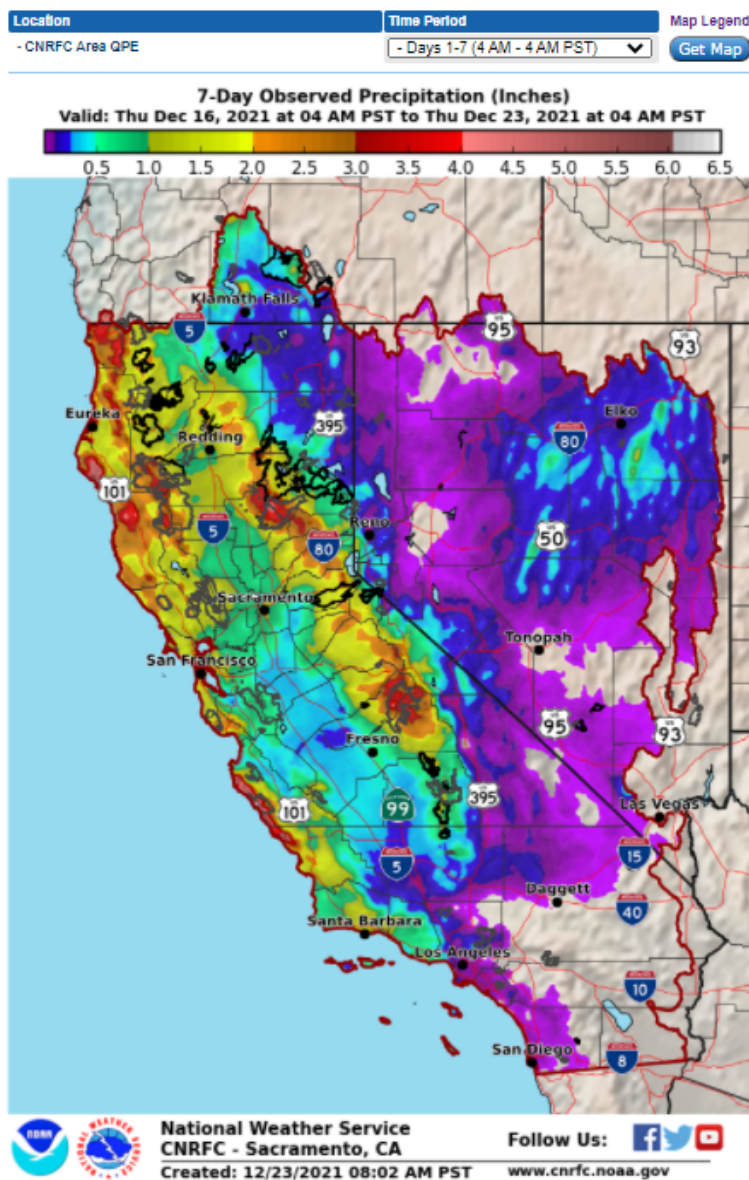


Figure 1. CNRFC map of observed precipitation from 12/16 through 12/23 0400 hours.

Figure 2 shows the CNRFC map of the forecast precipitation for the next six days which goes out to December 29th at 0400 hours. Coastal areas will see up to 4 inches of precipitation while the Sierra Nevada will see upwards of 8 inches. Smaller accumulations are forecast for the Central Valley floor and the southeast deserts.

CNRFC Area Precipitation Forecast

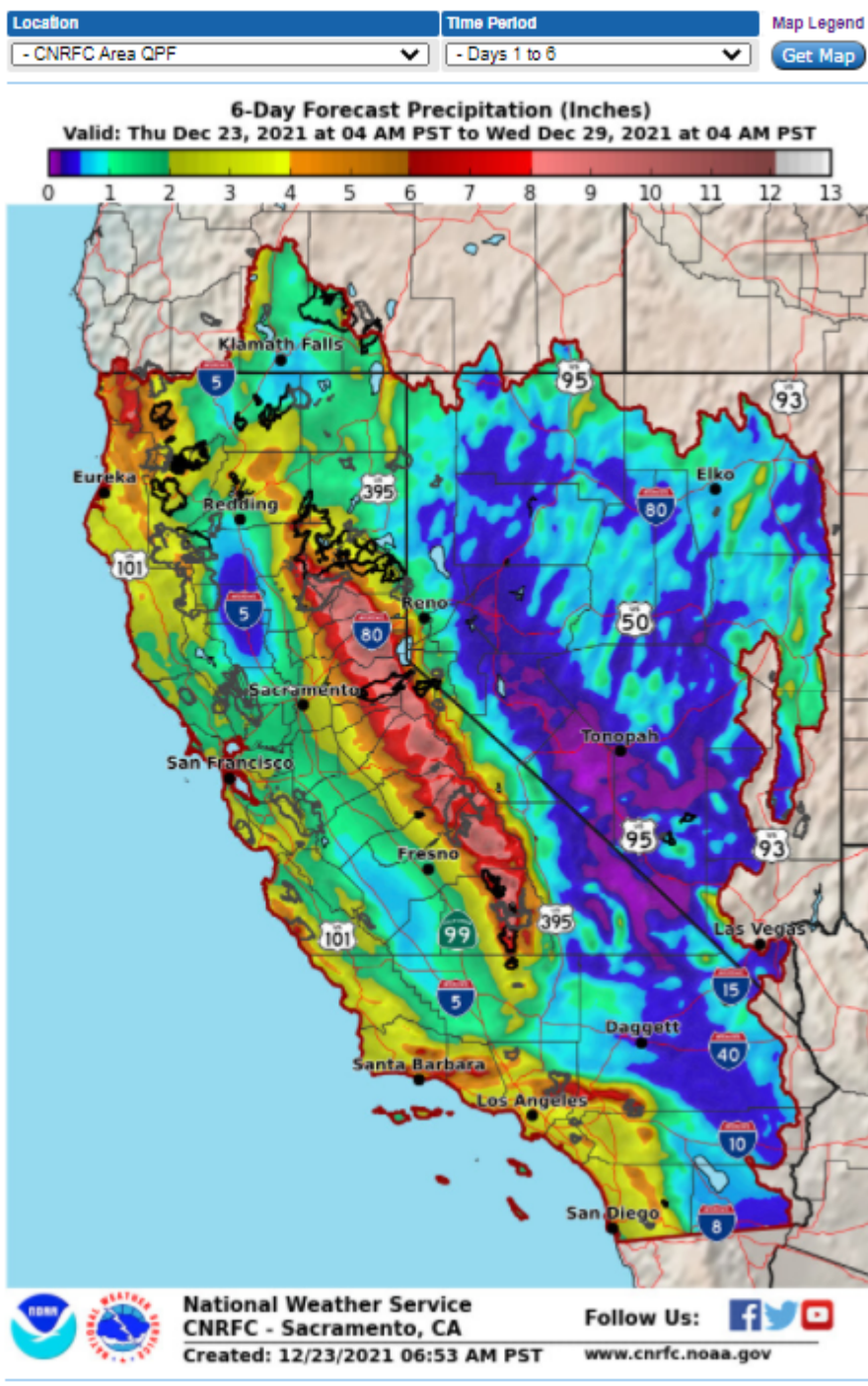


Figure 2. CNRFC map of 6-day forecast of accumulated precipitation for California.

The high-pressure system associated with La Nina conditions has moved back towards the international date line enabling a series of storms to move out of the Gulf of Alaska and down the coast where there are opportunities for atmospheric rivers to be entrained and enhance the precipitation. There are indications that the high-pressure system will attempt to reform in the eastern Pacific after the New Year which would shut the storm door and lead to drier conditions consistent with the water year outlook. If the high-pressure system were to move northward towards the Aleutian Islands, it would open the door for the possibility of a warm storm undercutting the high-pressure system which is a weather pattern that has led to some of our historic floods. A lot of things must align for that particular outcome. Next week's update will discuss these possibilities further. For this week, it appears the cold air will enable the growth of the snowpack and provide for the above average precipitation for December that was needed to ease drought conditions. More is needed to fully offset the accumulated impacts from the record dry and heat of the past two years, but this is a good start. I will provide some statistics on December's rainfall, snowpack, and runoff in next week's update.

The atmospheric river landfall tool from the Center for Western Weather and Water Extremes shown in Figure 3 suggests that the heavy moisture fields will impact Baja California into the New Year.

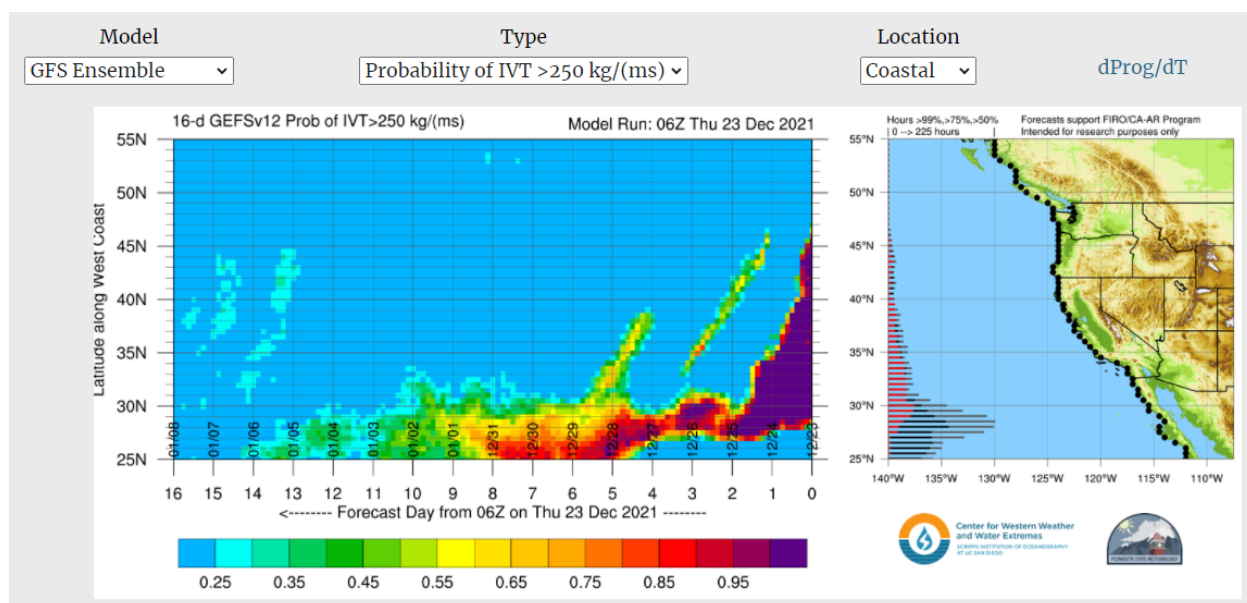


Figure 3. CW3E atmospheric river landfall tool for the US Forecast models ensemble suggesting the more prolonged atmospheric river conditions will be focused on Baja California and dry conditions settling in for California in the New Year.